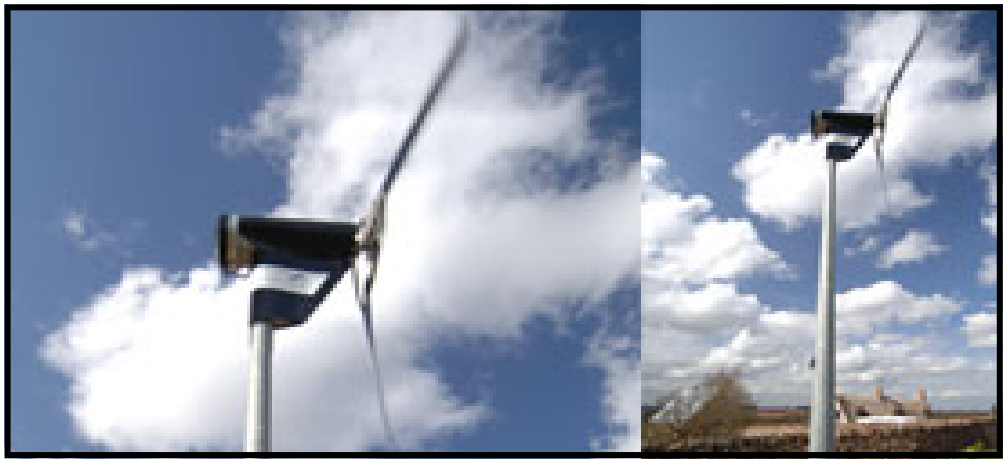

Wind Energy

Modern wind turbine generators use the wind's lift force to turn aerodynamic blades that turn a rotor connected to an alternator which creates electricity.

In the UK we have a high proportion of the available wind energy for Europe, with prevailing south-westerly winds blowing in uninterrupted across the Atlantic, making Britain one of the windiest countries in Europe. However we only make about 0.5% of our electricity by wind power. Individual turbines vary in size and power output from a few hundred watts to two or three megawatts (as a guide, a typical domestic system would be 2.5 - 6 kilowatts, depending on the location and size of the home).

There are two types of domestic-sized wind turbine:

- **Mast mounted:** these are free standing and are erected in a suitably exposed position, often around 2.5kW to 6kW
- **Roof mounted:** these are smaller than mast mounted systems and can be installed on the roof of a home where there is a suitable wind resource. Often these are around 1kW to 2kW in size.

For general information on the subject check the information on the Energy Saving Trust - small scale wind turbines and DTi-Low Carbon Buildings Programme - Wind turbines webpages.

Energy generation

Howardian Hills
Area of Outstanding Natural Beauty

Options for households and businesses generating their own energy are improving all the time as technology is further refined.

Some of the most popular choices are solar, wind and hydro power. These are effective alternatives to fossil fuels with the potential to help you to meet your own energy requirements and reduce your home's carbon dioxide emissions.

Worfolk Cottage in the North York Moors National Park
Technology used here includes photovoltaic cells for heat and electricity, a small wind turbine and groundsource heat.
More information can be found at www.worfolkcottage.co.uk

This leaflet takes a brief look at solar, wind and hydro power and provides information about to where you can look for more detailed guidance.

Solar panel on the roof of the granary at Howsham

Solar electricity

Solar energy systems capture the sun's energy using photovoltaic cells. Photovoltaic (PV) panels have relatively high capital costs which can deter people from this option, but costs are falling and efficiency is rising all the time. PV requires only daylight - not direct sunlight - to generate electricity.

The panels required to produce energy are larger than those needed to capture heat to warm water; in the majority of the UK they tend to work only in the summer months when the demand for heat is at a minimum.

For a summary of what solar power involves, look at the ecocentre web-site. For more general information on the subject check the information on the Energy Saving Trust and DTi-Low Carbon Buildings Programme photovoltaics webpages.

Hydro electricity

Sitting on an island in the River Derwent, Howsham Mill is a Grade II listed watermill. It dates back to Georgian times and was formerly used to grind corn. Its current owners, the Renewable Hertiage Trust, are aiming to restore the building to create a bunkhouse and education/community room.

The AONB SDF has provided grant funding to the hydro-electric scheme at Howsham Mill. SDF funded the restoration of the waterwheel which, along with an Archimedes screw, will generate enough power to supply the whole village of Howsham. Payments RHT receive for generating this power will contribute towards the cost of restoring the rest of the building and in the longer term will fund its ongoing running costs.

For more information about Howsham Mill please visit www.rht.greenisp.org.

For general information on the subject take a look at the information on the Energy Saving Trust hydro and DTI-Low Carbon Buildings Programme small scale hydro webpages.

Archimedes Screw at Howsham Mill